



Fermi National Accelerator Laboratory (FNAL or Fermilab)

Site Description: Fermilab, established in 1968, operates the world's highest-energy particle accelerator. Located about 35 miles west of Chicago, slightly north of Illinois Route I-88, in Batavia, Illinois, the Fermilab site spans 6,800 acres, and has over 300 buildings, including accelerator and detector enclosures, laboratories, shops, assembly bays, a medical center, and housing for experimenters.

Mission: Fermilab advances the understanding of the fundamental nature of matter and energy by providing leadership and resources to conduct basic research at the frontier of high-energy physics and related disciplines.

Management: The U. S. Department of Energy (DOE) Office of Science (SC) is the lead program secretarial office. The Office of High Energy and Nuclear Physics (SC-20) provides nearly all of the funding under the high energy physics program. The Fermi Group (FRMI) manages the Fermilab's contract activities through the Chicago Operations Office (CH). The management and operating contractor is the Universities Research Association, Inc. (URA). There are about 2,100 Fermilab employees and 15 Fermi Group employees, as well as more than 2,700 scientists from 38 states and 23 countries, who use Fermilab's facilities to carry out research at the frontiers of particle physics.

Budget: The annual budgets for FY 1999 and FY 2000 are approximately \$285 and \$292 million, respectively.

Integrated Safety Management (ISM) Implementation Status: In August 1998, Fermilab submitted revision 2 of its ISM system description to DOE for review and approval. As part of an ISM contractual performance measure, Fermilab submitted an ISM gap analysis and corrective action plan to FRMI. A CH-led team conducted a Phase 1 and 2 ISM Verification at Fermilab September 27-October 8, 1999. A draft report recommending approval of the ISMS system is expected in winter 1999.

Significant Events: During the past two years, Fermilab reported two events to the DOE Occurrence Reporting and Processing System (ORPS), resulting in two Type B accident investigations. In one event, three subcontractor workers received first and second degree burns in an acetone flash explosion. In the second, two subcontractor electrical workers sustained burn injuries in an electrical flashover. For both, Fermilab developed corrective action plans, about which CH routinely sends status reports to the DOE Office of Environment, Safety and Health. The web addresses for the investigation reports are:

1. http://www.tis.eh.doe.gov/oversight/acc_inv/flammable.pdf
2. http://www.tis.eh.doe.gov/oversight/acc_inv/fermia1B.pdf

Key Facilities

| Facility Name | Mission /Status | Principal Hazards |
|---|--|--|
| <p>Accelerators:</p> <p>Tevatron: The world's highest-energy, superconducting particle accelerator sends tiny particles of matter, protons and antiprotons, racing in opposite directions around a four-mile underground ring.</p> <p>Main Injector: The Main Injector will increase discovery power of the Tevatron by a factor of five by increasing the number of particles that collide at high energy. Capable of directing beam of particles to Tevatron <u>or</u> to fixed target experiments.</p> <p>CDF and D-Zero Detectors: Two 5,000-ton detectors track and record data from Tevatron particle collisions.</p> | <p>Protons and antiprotons collide at 1 trillion electron volts (TeV), close to the speed of light, for high-energy particle physics experiments that help scientists understand the fundamental nature of matter.</p> <p>The Main Injector facility used components from the historic Main Ring accelerator it replaced and was completed in June 1999.</p> <p>These detectors provide data for two 450-member collaborations of particle physicists and are scheduled to start operating with upgraded capability in the spring of 2001.</p> | <p>Electrical; cryogenic; radiation; oxygen deficient environments; confined space; standard industrial occupational safety hazards.</p> |
| <p>NuMI: (Neutrinos at the Main Injector) Long-baseline neutrino mass experiment will use high-intensity neutrino beams from Fermilab's Main Injector with detectors at Fermilab and 460 miles away at Soudan, Minnesota.</p> | <p><u>New</u> project – onsite construction started in FY 1999 with site preparation; completion is planned for FY 2003.</p> | <p>Electrical; radiation; confined space; oxygen deficient environments; standard construction and industrial occupational safety hazards.</p> |
| <p>Onsite TSDFs: Site 55, Building WS-3 – <u>Storage only</u> of Resource Conservation and Recovery Act (RCRA) waste</p> | <p>RCRA Part B Operating permit (>90-day storage); [WS-1 and WS-2 at Site 55 are for <90-day storage].</p> | <p>Possible exposure to hazardous chemicals.</p> |

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